The Facts

Nearly once every minute, somewhere in America, a fire department is called to a home fire. Approximately once every one and a half second an unreported fire occurs. Fire in the United States kills more people than all natural disasters - such as floods, hurricanes, tornadoes, earthquakes and blizzards - **combined**. The rate of death from fire in the United States is significantly higher than in other industrialized nations. The economic implications of fire loss are staggering, such as the cost of fire fighting services, the disruption of business operations after a fire, and the medical costs for those injured. When these costs and the human and property losses directly due to fire are combined, the true cost of fire exceeds $100 billion a year. Additionally, there is very substantial psychological trauma from injury. The residential fire problem in the United States accounts for three quarters of fire deaths and two thirds of the injuries to civilians. Residential fires also account for more fire fighter injuries than any other type of fire. The major causes of fire in residences, as identified by the National Fire Protection Association, are:

The Major cause of civilian deaths is smoking material, accounting for three of every ten deaths and most begin with ignition of upholstered furniture, mattresses, or bedding..

Heating equipment is the leading cause of home fire incidents. Most involve portable or space heaters.

Cooking equipment is the leading cause of home fire injuries.

Child fire play, typically involving matches or lighters, accounts for only one every twelve fire deaths but is the leading cause of the preschool fire deaths, accounting for three of every ten.

Electrical distribution system equipment accounts for a much smaller share of the home fire problem than most people realize, ranking no higher than third among the twelve major cause categorize. However even a fire cause such as this, which seems totally an equipment problem usually, involves human error. The majority of home electrical fires involve code violations, particularly the general workmanship provisions, and exposed elements, such as cords, are even more subject to abuse by occupants.

It is important to recognize that *human error is the constant factor* in the causes above. Americans are similarly careless about fire. These causes show no preference for new or older homes, for wealth or poverty, or for race or religion. A truly American phenomenon, these causes are related to American lifestyles and habits. As grim as this picture is, improvements have been made over the last two decades. Since the mid 70's when the landmark Federal Fire Prevention and Control Act was passed, fire officials at local, state and federal levels, as well as private sector leaders, have mounted a significant attack on America's fire problem. This year the National Fire Protection Association (NFPA) announced a drop in the death rate due to fire to the lowest level in at least eighty-four years. These improvements in fire death rates have occurred for several reasons Fire departments are better equipped and better trained than they were twenty years ago. Public education and awareness programs have made people more aware of fire danger. Lifestyle changes, such as fewer people smoking, have had a significant impact. Further, building code changes, including required sprinkler systems, have reduced the risk of fire in all occupancies. But the most potent weapon in fighting fire death in homes-where the death rate is

highest-has been the smoke detector. Smoke detectors, which clearly do save lives when, properly installed and maintained, have had less dramatic impact on either property loss or the cost of fire services. With an early warning from their detector, occupants are better able to get out of the house. However, unless residents are able to extinguish the fire while it is small, the blaze spreads. The fire department must then expend resources to fight the fire, and damage to the dwelling and personal property still occurs. Everyone agrees that smoke detector use must be maintained and extended. But to achieve further meaningful progress in fire protection and safety, an additional intervention is needed. That intervention, already available, is wide-scale installation of the Fast Response Residential Fire Sprinkler. Smoke detectors do what their name implies. They provide early detection, and thus warning, of a fire. They do not provide early protection, and they take no action on the fire itself. Residential sprinklers represent a different approach and technology by adding fire suppression to the early warning of smoke detectors. The ability of sprinkler systems to control or extinguish fires in their early stages makes them a critical tool in fire protection strategy.

RESIDENTIAL SPRINKLERS SAVE PROPERTY residential sprinkler systems were intended a life safety system, or an aid to escape. However, just as commercial systems have proven to be life safety systems, residential systems have proved to provide property protection as well. Residential sprinkler use is still not widespread but sprinklers in other occupancies have proven their life saving value. Over the years of use in commercial occupancies, these systems that were intended for property protection have proved to be a life safety system as well.

There has not been a single residential fire fatality in a residence with a sprinkler system in either Napa, California, or Cobb County, Georgia, since the inception of those programs, which were two of the first in the nation. There has not been a single fire fatality in Prince George's County, Maryland, in a building with a sprinkler system. Scottsdale, Arizona credits sprinkler Systems with saving tip to 52 lives since their sprinkler ordinance passed in 1985.

FOR A COMMUNITY

Over time, residential sprinklers will slow increases in the cost of fire protection and allow the fire service to put more emphasis on other pressing emergency resource needs. Sprinkler systems do not necessarily reduce the number of calls for fire fighters, but they do reduce the severity of the fire, thereby reducing the complexity of the response and the associated danger to fire fighters. Because sprinklers could diminish the requirements of fire suppression, they also enable the fire service to allocate more resources to Emergency Medical Service (EMS), search and rescue, public fire education, building inspection, plan review, and arson investigation-time spent preventing fires rather than fighting them.

Several high-growth California communities have reported reduced growth of fire department costs without any reduction in the level of service since the introduction of residential fire sprinklers.

Residential Sprinklers Save Water

The claim that "automatic sprinklers cause water damage" must be looked at honestly and in comparison with the alternatives.

Yes, by the design, construction, and functional operation characteristics, a fire sprinkler, upon activation, will cause water damage. However, water damage would be much greater if the automatic sprinkler did not activate. An automatic fire sprinkler system in a typical single-family dwelling will discharge between 10-30 gallons per minute. This is at a time when the fire is small and the heat output requires a minimal amount of water to control the fire.

A typical fire suppression hose-stream will place between **125-300** gallons of water per minute on a fire, after the fire department has set up at the fire scene (between 5- 8 minutes from time of discovery). During these crucial first minutes, the fire expands with intensity.

Considering the worst case scenario as an example, and allowing the same time for extinguishment and/or shutdown, the actual figures show the following:

Type of Suppression	Time	Flow	Total Water Used
Fire Sprinklers	2 - 8	30 GPM	240 Gallons
Firefighters	6 - 8	300 GPM	3200 Gallons

Of course, in the scenario with the fire fighters (no sprinklers), the fire has been allowed to burn, uncontrolled, during the discovery, response, and set-up at the fire scene, so, in addition to water damage, the dwelling suffered much more fire and smoke damage than the dwelling in the scenario with the sprinkler system.
The potential water/fire damage incurred with automatic sprinklers compared to the water/fire damage incurred without must be viewed in perspective. The damage costs will be less with sprinklers and the clean up and restoration costs will be less with sprinklers. Most materials can be dried out and restored, but ashes last forever.

For Homeowners Residential fire sprinklers save lives and property. This alone makes them a plus for homeowners. In commercial and multi-family settings, fire sprinklers also result in fire insurance premium reductions. Opponents of fire sprinklers often question the actual cost of fire sprinkler installations. This occurs because the factors influencing the cost can vary. Cost of installation in both new and existing detached one- and two-family dwellings depends largely on five factors: 1. The size of the residence. 2. The construction limitations - restraints. 3. The available water supply. 4. The materials being used. 5. The layout of the fire sprinkler system. Installations in new detached one- and two-family dwellings are between $0.58 cents and $0.98 cents a square foot. This does not include costs for a water meter or connection to the water main, as these are part of normal home construction. In most cases the cost of the sprinkler system is lower than the costs of the floor covering (carpeting).

Insurance Savings Although the greatest benefit from widespread installation of residential sprinklers will be the lives saved and injuries prevented; lower property losses will be a secondary and substantial benefit. An ad-hoc committee from the insurance industry sponsored a number of test fires in Los Angeles and concluded that residential sprinklers had the potential for reducing homeowners' claim payment expenses. As a result, the Insurance Services Office Personal Lines Committee recommended that a 15-percent reduction in the home owner's policy premium be given for the installation of an NFPA 13D, Installation of Sprinkler Systems in One- and two-family Dwelling and Mobile Homes, residential sprinkler system. While this would not pay for the system over a short period of time, as is the case in many commercial installations, the continuing increases in the cost of insuring a singe- family home make this a significant incentive nonetheless. A survey of insurance companies was completed by the State Fire Marshal's Office Ad-hoc Committee on Residential Sprinklers in February 1987. Of the 243 companies surveyed, 19 gave a discount for detached one- and two-family dwelling fire sprinklers. Several insurance companies in California give discounts for detached one- and two-family dwellings protected with residential fire sprinkler systems: * Aetna Casualty * All West * American National * Associated Indemnity * Blue Ridge * Cal Casualty * Continental Insurance Company * Fireman's Fund * Insurance Company of North America * Prudential * Phoenix Insurance Company * St. Paul Guardian * Travelers Indemnity Company * Unigard Security * United Pacific Insurance Company * United Services Automobile Assoc. * West American Insurance Company In addition, State Farm Insurance Company and Allstate Insurance offer discounts ranging from 2 to 20 percent for installing sprinklers, dead bolts,

smoke detectors and central monitoring.. Additionally, in a number of areas around the country, sprinklers have played an important role in helping jurisdictions maintain a favorable Insurance Service Office (ISO) rating.

For Homebuilders Like careless smoking, unattended cooking, or children playing with fire. While we adults cannot be designed to never smoke carelessly or all children to not hide in the closet after they have accidentally set a fire, sprinkler systems can be designed to control the results of this behavior. Automatic fire sprinklers are not too expensive when considering the actual cost/benefit ratio. When a home in the city has a fire, who is affected by the fire? The immediate family (fire victims: injuries, mental and physical; scars for life). * The adjacent families who have witnessed a tragedy which could have been averted. * The community by having the family members whom had the fire preoccupied by the fire and not able to work. The company that had the employee who must resolve the immediate and long-range solutions to the fire. * The community which must pay for a fire department operation that can only react to a fire which is observed in progress. Sprinklers could have controlled what is the cost to a community for a fire fighter who is injured or dies during the extinguishment of a fire.

CONCLUSION

Residential sprinklers have the potential to reduce fire death and property loss attributable to fire. They can do so without jeopardizing the affordability of the housing stock in this country. They can enhance the capacity of public officials to provide for the health and safety of all citizens, including those most at risk: the elderly, the very young,

Thanks to:

Orange County Fire Authority

Home